IN THE CLAIMS

Please amend the claims as follows:

What is claimed is:

1. A positioning assembly capable of operating with an MRI apparatus, said assembly having an axis, said assembly being configured for use with a main MRI magnetic imaging magnet having a main MRI magnet bore, comprising:

a first mounting member mountable relative to the main MRI magnetic imaging magnet in a fixed axial position;

a locator member rigidly spaced a ~~predetermining~~ predetermined axial distance apart from said first mounting member and insertable within ~~said~~ the main MRI magnet bore, said locator member having a surface portion configured to engage and axially locate a gradient first coil in the main MRI magnet bore;

a spacer member rigidly spaced a predetermined axial distance apart from said first mounting member and from said locator member and with said spacer member also being insertable within ~~said~~ the main MRI magnet bore, said spacer member having a keyed surface portion; and

a second mounting member having a keyed surface portion axially fixed by and engageable with said keyed surface portion of said spacer member, said second mounting member being configured to axially locate a probing second coil in the main MRI magnet bore at a predetermined axial distance relative to the main MRI magnetic imaging magnet and said gradient first coil.

2. The assembly of claim 1, wherein said first mounting member comprises a flange mountable to an external surface portion of ~~said~~ the main MRI imaging magnet and a plug portion inserted within ~~said~~ the main MRI magnet bore.

3. The assembly of claim 1, wherein said locator member comprises an abutment surface portion for engaging the gradient first coil ~~a gradient coil~~.

4. The assembly of claim 1, wherein said spacer member comprises a plate insertable within the gradient first coil ~~a gradient coil~~.

5. The assembly of claim 1, wherein said second mounting member comprises a cap mountable to the probing second coil ~~a probe magnet~~.

6. The assembly of claim 1, further comprising a plurality of front ~~space~~ spacer members interconnecting said first mounting member and said locator member.

7. The assembly of claim 1, further comprising a plurality of inner spacer members interconnecting said locator member and said spacer member.

8. The assembly of claim 1, further comprising a pair of support rods coupled to said first mounting member, said locator member and said spacer member.

9. The assembly of claim 1, further comprising a specimen positioning assembly removably mounted within said first mounting member and said locator member.

10. A positioning assembly mountable within ~~the~~ a bore of an MRI imaging apparatus having an axis, comprising:

a front mounting member axially engageable with said imaging apparatus; an annular locator member configured to fit closely within the bore and

being rigidly connected to said front mounting member, said locator member rigidly spaced a predetermined axial distance apart from said front mounting member and having a surface portion adapted to engage and axially locate a gradient first coil in the bore;

an annular spacer member rigidly connected to said annular locator member and configured to fit within and support the gradient first coil; and

a pair of support rods carried by said front mounting member, said locator member and said spacer member, said rods being located to pass axially through the gradient first coil in the bore.

11. The assembly of claim ~~11~~ 10, wherein said pair of support rods comprises a pair of cylindrical rods.

12. The assembly of claim ~~12~~ 10, wherein said front mounting member comprises a front flange mountable externally of said bore.

13. The assembly of claim ~~12~~ 10, wherein said pair of support rods is aligned in a horizontal plane passing through said axis.

14. The assembly of claim ~~12~~ 10, further comprising a specimen positioning assembly supported in said positioning assembly on said support rods.

15. The assembly of claim 14, further comprising a pair of support rails provided on said specimen positioning assembly and slidably engaged with said pair of support rods.

16. A positioning system for positioning a specimen in a predetermined position within a bore of an MRI imaging machine and through a bore of a gradient coil located in the bore of the MRI imaging machine, said positioning system comprising:

a first pair of support members insertable within said bore of said MRI imaging machine and through the bore of the gradient coil;

a specimen positioning assembly comprising a specimen retention device and a second pair of support members insertable within said first pair of support members; and

an ~~sliding~~ interconnection provided between said first and second pairs of support members, said interconnection locating said specimen positioning assembly within said bore of said imaging machine and within the bore of said coil.

17. The system of claim 16, wherein said sliding interconnection comprises a pair of rods and a pair of grooved rails.

18. The system of claim 16, wherein said sliding interconnection comprises a self-centering interconnection.

19. The system of claim 16, further comprising a mounting member fixed to said MRI imaging machine, and wherein said first pair of support members is connected to said mounting member, and wherein said specimen positioning assembly is freely insertable into said mounting member and freely removable therefrom.

20. The system of claim 16, wherein said specimen positioning assembly comprises an engagement member for limiting insertion of said specimen positioning assembly into said MRI imaging machine.

21. A method of positioning a specimen in an MRI imaging apparatus having an MRI imaging bore, comprising:

mounting a positioning assembly ~~on said~~ concentrally in the MRI imaging bore of the MRI imaging apparatus;

abutting a surface on the positioning assembly against the MRI imaging apparatus;

constraining a specimen in a specimen holding assembly;

~~mounting the~~ inserting the specimen holding assembly ~~on said~~ into the positioning assembly; ~~and~~

abutting a positioning surface on said specimen holding assembly with a positioning surface on ~~said~~ the positioning assembly; and

axially spacing the specimen a predeterminded axially distance within the MRI imaging bore of the MRI imaging apparatus by said abutting, whereby the specimen is positioned in the MRI imaging apparatus at a desired position.